# WORKSHEET: Section 9.1 – Confidence Interval for Proportion

1. If 64% of a sample of 550 people leaving a shopping mall claims to have spent over $25, determine a 99% confidence interval estimate for the proportion of shopping mall customers who spend over $25. Interpret your interval.
2. In a random sample of machine parts, 18 out of 225 were found to have been damaged in shipment. Establish a 95% confidence interval estimate for the proportion of machine parts that are damaged in shipment. Interpret your interval.
3. A telephone survey of 1000 adults was taken shortly after the U.S. began bombing Iraq. If 832 voiced their support for this action. Create a 99% confidence interval and interpret the interval.
4. An assembly line does a quality check by sampling 50 of its products. It finds that 16% of the parts are defective.
   1. Create a 95% confidence interval for the percent of defective parts for the company and interpret this interval.
   2. If we decreased the confidence level to 90% what would happen to:
      1. the critical value?
      2. the margin of error?
      3. the confidence interval?
   3. If the sample size were increased to 200, the same sample proportion were found, and we did a 95% confidence interval; what would happen to:
      1. the critical value?
      2. the margin of error?
      3. the confidence interval?
5. A nationwide poll was taken of 1432 teenagers (ages 13-18). 630 of them said they have a TV in their room.
6. Create a 90% confidence interval for the proportion of all teenagers who have a TV in their room and interpret it.
7. What does “90% confidence” mean in this context?
8. If we increased the confidence level to 99% what would happen to:
9. the critical value?
10. the margin of error?
11. the confidence interval?
12. If the sample size were changed to 950, the same sample proportion were found, and we did a 90% confidence interval; what would happen to:
    * 1. the critical value?
      2. the margin of error?
      3. the confidence interval?
13. Suppose a 90% confidence interval is stated as (0.3011, 0.4189).
14. What is the sample proportion from this sample?
15. What is the margin of error?

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